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Late Pleistocene glaciation of the Kodar Mountains, south-central Siberia, constrained by Be-10 exposure dating

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Late Pleistocene glaciation of the Kodar Mountains, south-central Siberia, constrained by Be-10 exposure dating

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The glacial history of the mountainous Transbaikalia region NE of Lake Baikal, Siberia, has so far received little attention. The Kodar Mountains exceed 3000 m in elevation and small cirque glaciers currently occur in the central parts of the range. Yet, greatly expanded glaciation in the past is evidenced by massive moraine complexes at the mouth of glacial valleys in the Chara Depression (part of the Baikal rift system), and along the Vitim River valley to the NW. The moraines document the existence of large valley glaciers that reached to over 120 kilometres in length. We applied Be-10 exposure dating to determine the timing of glacier advances that formed the major moraines: 19 samples from boulders on 8 moraine ridges in 5 moraine complexes. Our results indicate extensive glaciation in the Kodar Mountains at the time of the Last Glacial Maximum, with our ages spanning from about 20 ka to the Late Glacial. We attribute the age spread on some of the moraines to boulder exhumation linked to permafrost dynamics.